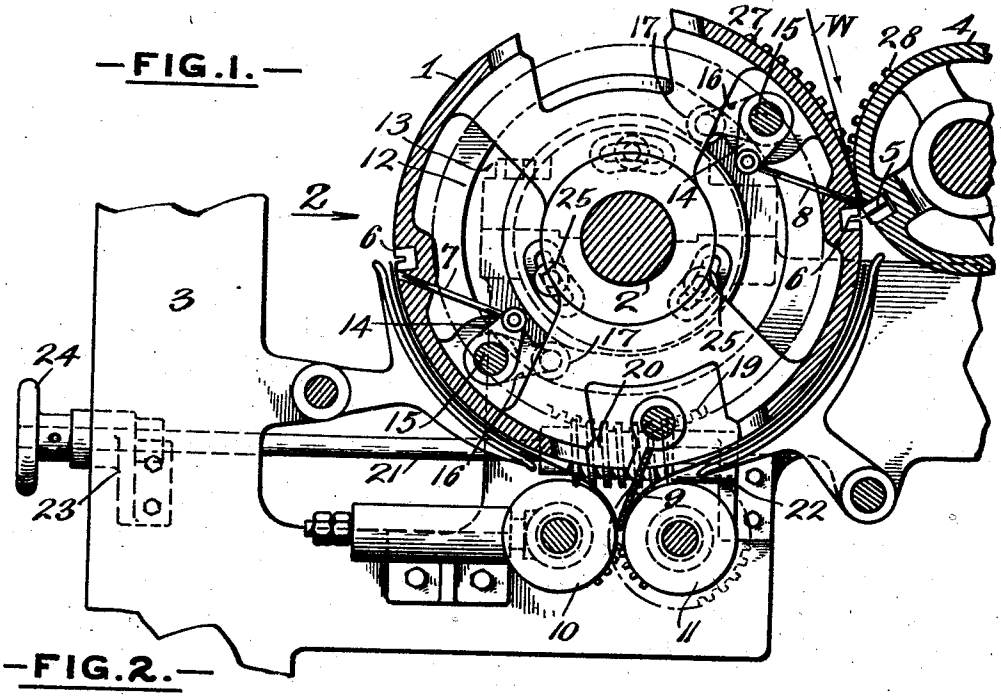
May 4, 1926. 1,583,456

J. J. HALLIWELL

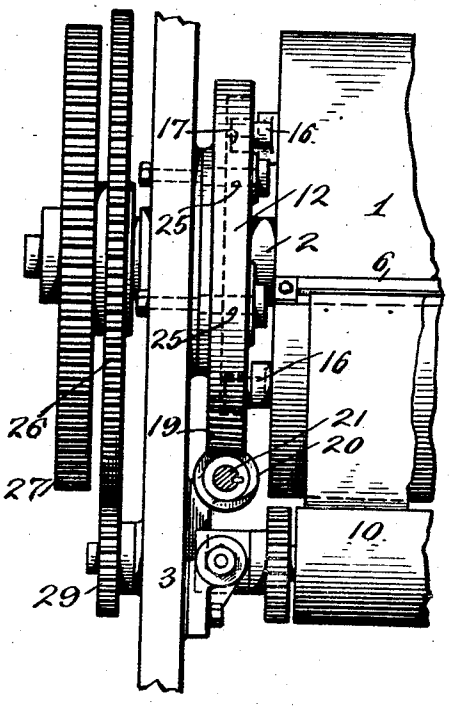
PIN CAM ADJUSTING MECHANISM

Filed June 3, 1924

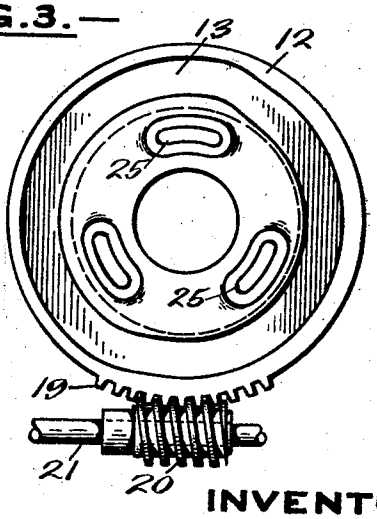
—FIG. 1.—



—FIG. 2.—



—FIG. 3.—



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Patented May 4, 1926.

1,583,456

UNITED STATES PATENT OFFICE.

JOHN J. HALLIWELL, OF TUCKAHOE, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO R. HOE AND CO., INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

PIN-CAM-ADJUSTING MECHANISM.

Application filed June 3, 1924. Serial No. 717,496.

To all whom it may concern:

Be it known that I, JOHN J. HALLIWELL, a citizen of the United States, residing at Tuckahoe, county of Westchester, and State of New York, have invented certain new and useful Improvements in Pin-Cam-Adjusting Mechanism, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to certain improvements in sheet controlling devices for rotary sheet handling mechanisms.

In certain types of sheet handling mechanism, such, for instance, as a rotary folder, the web is forwarded to a rotary carrier, usually a cylinder, and between it and a cooperating abutment, the form of such abutment being a cutting cylinder which acts to cut a sheet from the web. These rotary cylinders are provided with sheet taking devices which may be in the form of pins, and these pins, where pins are employed, take the head of each sheet and carry it partially around the cylinder, and as the pins take the sheet around, a sheet length is cut from the web. The sheet after it is cut off is tucked off the cylinder by a tucking blade into the bite of folding off rolls. These folding cylinders, of course, vary in speed, the starting speed being much slower than the running speed. This variation in the speed of the cylinder causes an irregularity in the folding off of successive sheets. For instance, with a cylinder at starting or running at slow speed, the end of the sheet taken by the pins is not advanced past the cutting blade quite far enough, with the result that when the tucking blade acts to fold the sheet the tail of the sheet will lap over the head end, thus producing an irregular fold. If the parts are timed to produce a regular fold at starting or at slow speed, when the cylinder is driven at high speed the throw of the cylinder causes the sheet to be advanced too far past the tucking blade, with the result that the head end of the sheet laps over on the tail end, thus producing an irregular fold.

It is one object of the present invention to produce a construction whereby the time at which the sheet taking devices take and release the sheet may be varied with relation to the folding rolls by a manually operable controller which may be operated while the machine is running, so that as the speed of the folder varies the pins may be caused to take and release the sheet at such time with respect to the folding blade that the fold will occur in the center fold line of the sheet and an even folded product produced, and so that the pins will not tear or otherwise injure the sheet.

It is a further object of the invention to produce a mechanism for effecting this which shall be of few parts, and which can be readily installed in machines already in use, as well as in new machines.

With these and other objects not specifically referred to, the invention consists in certain novel arrangements, parts and combinations which shall be fully described in connection with the accompanying drawings, and the novel features pointed out in the claims hereunto annexed.

Referring now to these drawings,—

Figure 1 is a vertical sectional view of a rotary folder and associated parts illustrating the invention;

Figure 2 is a side view, partly broken away, of one end of the construction shown in Fig. 1, looking in the direction of arrow 2 of that figure, and

Figure 3 is a detail view of the pin operating cam, and one means for shifting it.

Referring now to these drawings, the invention has been illustrated in connection with a rotary folder in which the carrier is in the form of a cylinder. This cylinder is indicated by the numeral 1 and is supported on a shaft 2 suitably journaled in side frames 3 of any usual or desired configuration. Cooperating with cylinder 1 is an abutment between which and the cylinder the sheet is passed, this abutment in the construction illustrated being a cutting cylinder 4 provided with cutting knives 5 which cooperate with the usual cutting woods 6 on the cylinder 1, this cylinder cutting sheets from a web W.

The rotary cylinder 1 is provided with sheet taking devices, and these sheet taking devices are in the construction illustrated in

the form of pins, two sets of these pins 7, 8 being provided. These pins act to take the head end of the sheet and forward it past a folding blade 9 which acts to tuck the sheet into the bite of a pair of folding off rolls 10, 11.

According to the invention, means are provided for manually varying the time at which the pins take and release the sheet with relation to the action of the tucking blade, so that the sheet may be tucked off evenly and injury to the sheet due to a drag on the sheet by the pins is prevented. While the means employed for this may be varied somewhat, in the particular construction illustrated, there is provided an operating cam 12 provided with a groove 13. This cam is loosely mounted on the shaft 2 before referred to. The pins are mounted on arms 14 on shafts 15, these shafts having secured thereto arms 16 which carry rolls 17 which run in the groove 13 of the cam before referred to. It will be apparent that by shifting the position of this cam the time of withdrawal of the pins may be varied with respect to the action of the folding blade, and means are provided by the present invention for manually effecting this shifting of the cam, these means being such that the shifting movement may be accomplished while the machine is running. As shown, the cam is provided with means which will cooperate with the manually operable cam shifter for turning the cam on the shaft. In the particular construction illustrated for effecting this, a portion of the periphery of the cam is formed with worm teeth 19. In mesh with the teeth 19 is a worm 20 on an operating rod 21 supported in brackets 22, 23 mounted in the frame of the machine, this rod being provided with a hand wheel 24 by which the shaft may be operated. With this construction the cam can be shifted to vary the position of the pins as desired, and this can be done while the machine is running, the cam being adjusted so that the releasing movement of the pins is advanced if the press is running slow, or retarded if running fast, and this is done through a very simple mechanism which may be easily embodied with a folding cylinder already in use as well as in new machines. In the best constructions means are provided for steadying the cam, such as the pin and slot construction indicated by the numeral 25.

The parts may be driven in any suitable manner. As illustrated, the shaft 2, before referred to, is provided with a driving gear 26 driven from suitable source of power, not shown, and a second gear 27. This second gear is in mesh with and drives a gear 28 on the cutting cylinder 4, and is also in mesh with and drives a gear 29 on the shaft 30 of the folding off roll 11, before referred to. This gear 29 is in mesh with the gear 31 on the shaft 32 of the folding off roll thereby driving the latter.

While the invention has been shown and described in what is believed to be its best form, it will be understood that various constructions may be employed for manually shifting the cam, and the invention is not to be restricted to the details of construction described and illustrated.

What I claim is:

1. In a folder, the combination of a rotary carrier provided with sheet taking devices, a cam for operating the devices to take and release a sheet, and means manually operable while the machine is running for shifting the cam to adjust the time of operation of the sheet taking devices to take a sheet at the same point thereof but at different times.

2. In a folder, the combination of a rotary carrier provided with sheet taking pins, a cam for operating the pins to take and release a sheet and provided with means whereby it may be rotated, and a manually operable shifter engaging the means for shifting the position of the cam while the machine is running.

3. In a folder, the combination of a rotary carrier provided with sheet taking pins, a cam for operating the pins to take and release a sheet, teeth on the cam, and a manually operable shifter engaging the teeth for shifting the cam while the machine is running.

4. In a folder, the combination of a rotary carrier provided with sheet taking pins, a cam for operating the pins to take and release a sheet, teeth on the cam, and a manually operated rod having a worm in engagement with the teeth for shifting the cam.

5. In a folder, the combination of a rotary folding cylinder, sheet taking pins thereon, a shaft, a cam loose on the shaft for operating the pins to take and release a sheet and having teeth, a rod having a worm engaging the teeth for shifting the cam, and means for steadying the cam.

6. In a folder, the combination of a rotary folding cylinder, sheet taking pins thereon, a shaft, a cam loose on the shaft for operating the pins to take and release a sheet and having teeth, a rod having a threaded end engaging the teeth for shifting the cam, and a pin and slot connection for supporting and steadying the cam.

7. In a folder, the combination of a rotary folding cylinder, sheet taking pins thereon, a cooperating abutment between which and the carrier a product passes, a cam for operating the pins to take and release a sheet, and a cam shifter manually operable while the machine is running for shifting the position of the cam to vary the

time of operation of the sheet taking devices.

8. In a folder, the combination of a rotary folding cylinder, sheet taking devices thereon, a cooperating cutting cylinder between which and the folding cylinder a product passes, a cam for operating the sheet taking devices to take and release a sheet, and a cam shifter manually operable while the machine is running for shifting the position of the cam to adjust the time of operation of the sheet taking devices to take a sheet at the same point thereof but at different times.

In testimony whereof, I have hereunto set my hand.

JOHN J. HALLIWELL.